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☞ See Advertisement on last page.

POETRY.

LABOR SONG.

Why stand ye idle at the door ?
Hear ye not the furnace roar ?
Go to work with might and main ;
Though wearily,
Yet cheerily,
Swing the hammer, drive the plane.

Honest toil is sure to thrive—
God helps those who truly strive.
Whether by the hand or brain—
Though wearily,
Yet cheerily,
Swing the hammer, drive the plane.

See the man in yonder shop,
Not one moment doth he stop ;
For his little ones he'd fain,
Though wearily,
Yet cheerily,
Swing the hammer, drive the plane.

Hard at work, another pores
All night long o'er Learning's stores ;
Say not ye his work is vain—
Though wearily,
Yet cheerily,
Swing the hammer, drive the plane.

Then up, and work with heart so brave—
'Tis heart and work will each one save
Present want and future pain—
Though wearily,
Yet cheerily,
Swing the hammer, drive the plane.

THE LIGHT OF SCIENCE.

BY EZRA D. BARKER.

O let the light spread far and wide,
Away o'er hill and vale ;
O let it be our nation's pride ;
The star of science hail !
No longer pent in lordly hall
Amodg the favored few ;
The boon of Good —'tis free to all,
As drops of heavenly dew.

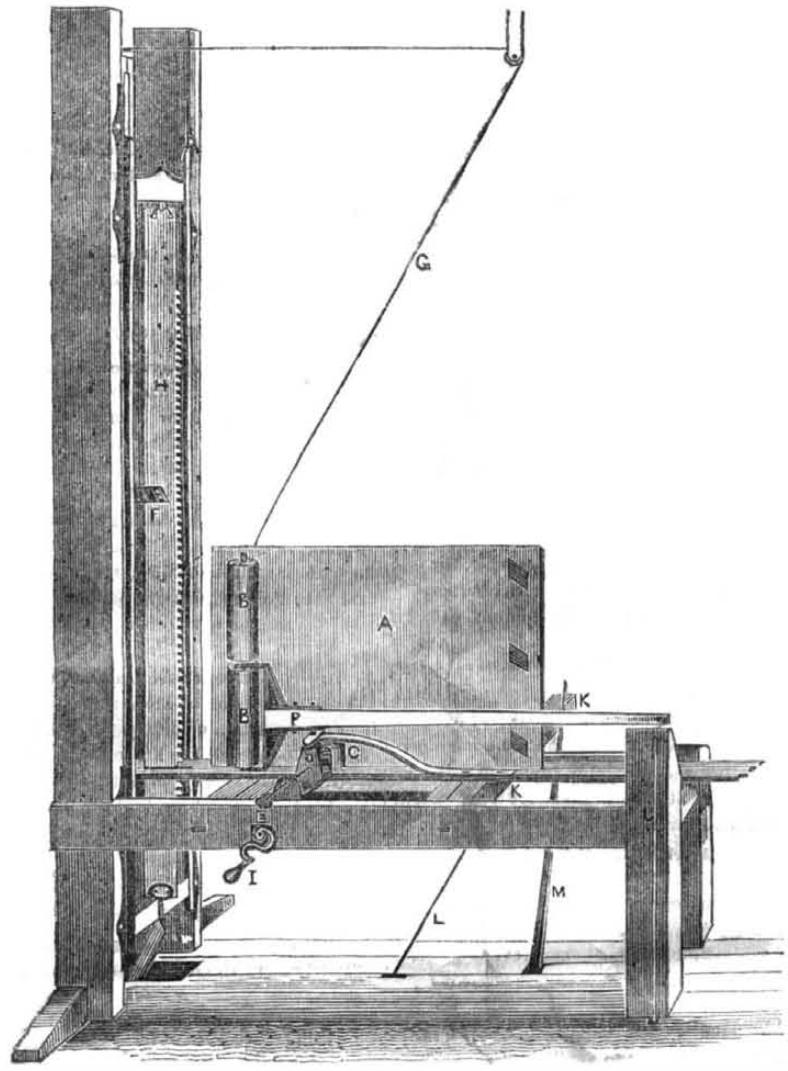
Ten thousand, thousand lamps of mind,
O'er wide creation spread,
Have long in darkness been confined,
Bedimed by Error dread.
Then march we on with torch in hand,
And light them in a glow,
'Till science beam from ev'ry land,
A firmament below.

Then radiant with eternal truth,
The soul on earth shall shine,
And early learn an infant youth
The way to world divine.
Then, teachers, rouse with cheerful zeal,
And mould with skillful art ;
Take virtue's signet—God's own seal,
Impress the youthful heart.

The Laugh of a Child.

"I love it—I love it—the laugh of a child,
Now rippling and gentle, now merry and wild;
Ringing out on the air with its innocent gush,
Like the thrill of a bird at the twilight's soft hush ;
It floats on the breeze like the tones of a bell,
Or the music that dwells in the heart of a shell.
Oh ! the laugh of a child, so wild and so free,
Is the merriest sound in the world for me !"

WELLS' PATENT IMPROVED SAWING MACHINE.



EXPLANATION.—This machine, is employed for re-sawing plank, boards and other timber—a machine much used in all places where lumber is manufactured. The frame work for the support of the saw and moving machinery require no explanation. The saw H as usual, is tightly strained in the frame or gate, which vibrates vertically between two posts, with well adjusted guides, and being operated by a crank and pitman beneath the floor. An upright guage plank A is permanently secured in its position by back braces attached to two lateral horizontal beams K K, and is nicely adjusted by the screw operated on by the crank I, so as to gauge the thickness of each cut of the board, and the plank to be sawed is placed in contact with the guage and pressed against it by two vertical rollers B B, which have their bearings in a frame attached to a lever P which is mounted on a pivot attached to the end of an elevated bar C which is secured to the framework at K ; and the rollers are pressed against the plank by means of a cord which passes from the extreme end of the lever, horizontally to the front over a pulley on the head of the post J, then down to a weight below. The plank being sawed is passed between the guage and the rollers; and is moved forward by a pair of feeding cams D C, but which cannot be fully described without a sectional cut. When the plank has passed the breadth of the saw, a heavy sliding block F descends upon the upper edge thereof, and serves to both guide or support the saw, and keep the plank down to its place during the operation. This block is occasionally elevated by a cord G which after passing up and over two pulleys descends to a fast below.—The thumb screw E is employed to regulate the feeders, and the upright lever M is used to connect or disconnect machinery below. This machine has been invented and put in successful operation by Mr. T. J. Wells of this city.

Swearing in Hebrew.

Not long ago, as I was on my way from Newark to Jersey City, in the cars, I observed a young lady sitting opposite to me, who seemed very much annoyed by the conversation of a young naval officer, which was continually intermingled with oaths. She at length,(having sat as long as she could without reproving him,) said, "Sir, can you converse in the Hebrew tongue ?" He replied, "that he could," expecting, no doubt, to hold some conversation with her in that dialect. She then politely informed him that if he wished to swear any more, he would greatly oblige herself, and probably the rest of the passengers, if he would do it in that language.

New Way to Peace.

An old farmer of this State proposes that *the* "three millions" be appropriated to buying up the Mexican presses in this country, as the shortest method of ending the war.

Western Enterprise.

Miss Matilda Muggs has put a fresh shingle at her shop door, in one of the western cities, with this announcemeut :—

NOTICE.—I ar got som nu artikkles faw sail sich as krakers, kandles, kauphy, kups and sawsors, and menny uther artikkles to nummurous to mension, all celling cheep. P. S. Beens bort here bi the kwort or booshil, apply in the passage round the makril baril.

Valedictory.

An editor of a country paper thus humorousl bids farewell to his readers: "The sheriff s waiting for us in the next room, so we have no opportunity to be pathetic. Major Nab'em says we must go. Delinquent subscribers, you have much to answer for."

Somebody advertises in the Boston Transcript for a couple of gentlemen boarders of "cultivated mind and manners."

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending May 22d, 1847.

To Samuel Gibson, of Manayunk, Pa., for improvement in Spark Arresters. Patented May 22, 1847.

To Thomas Peck, of Syracuse, New York, for improvement in Door Springs. Patented May 22, 1847.

To Ashley Crafts, of Auburn, Ohio, for improvement in Cooking Stoves. Patented May 22, 1847.

To Asa Whitney, of Philadelphia, Pa., for improvement in cast iron Car Wheels. Patented May 22, 1847.

To Alfred Hall, of Coxsackie, New York, for improvement in Brick Presses. Patented May 22, 1847.

To Sprague Barber, of New York, for improvement in operating Cut-off Valves, (having assigned his right to James A. Stevens, of New Jersey.) Patented May 22, 1847.

DESIGNS.

To Peter Low, of Troy, New York, for design for Stoves. Patented May 22, 1847.

A Matrimonial Adventure.

A remarkable story which is vouched for as absolutely true in relation to the discovery of a long lost wife, is told in a late Scotch paper, the *Post*, of Glasgow. The Adelphi Theatre in that city was open, and that pleasant play the "Battle of Sedgemore" was in course of performance. A favorite actress, Mrs. De Bourgh, was upon the stage supporting one of the characters, when a tall, military man in one of the stage boxes, gazed wildly about him and starting up from his seat, loudly exclaimed, "My wife ; by Heaven ! my Eliza !" Of course, astonishment and excitement ensued, and an explanation took place, which resulted in the discovery, that the gentleman was a Lieutenant Lewis, and that he was in truth the lady's husband. He had been on foreign service for many years, and was now accompanied by the lady's son, a fine fellow of two and twenty.—Each believed the other dead, and the lady had married a Mr. De Bourgh, who had been dead about eighteen months. Soon after this meeting, a most agreeable denouement took place, for the re-united and happy pair, availed themselves again of the benefit of clergy, and no objections being made by church or state, these two persons whom the fortunes of war had put asunder, were re-married in the presence of a large body of rejoicing friends.

Dan Rice's Coach.

Dan Rice, the celebrated Shakesperian Clown, attached to Welsh and Mann's Equestrian Corps, has been having a splendid equippage made at Wm. D. Rogers, in Boston. It is said to be one of the finest specimens of workmanship ever executed by the skillful mechanics of that city. It is what is called a calantine coach, and the body, wheels, and tongue, are painted a rich citron hue, the carved work being ornamented with red lines, which add greatly to its imposing appearance. It is completely silver mounted, and is furnished with all the modern improvements, such as an ear tube, through which to speak to the driver, handles on the inside to pull the door to when shut, and to open it without waiting for the driver, etc. The whole interior is lined in the most costly manner, with crimson cotelind, and the ceiling and windows with India crimson satin, altogether forming a superb spectacle It has also a patent protection step to keep the step from getting muddy and soiling the boots when stepping out. The lamps and tongue are truly splendid, but we cannot particularly describe them. The cost of this magnificent equippage was about $1120, and with horses, etc., the entire turn out will cost $1800.

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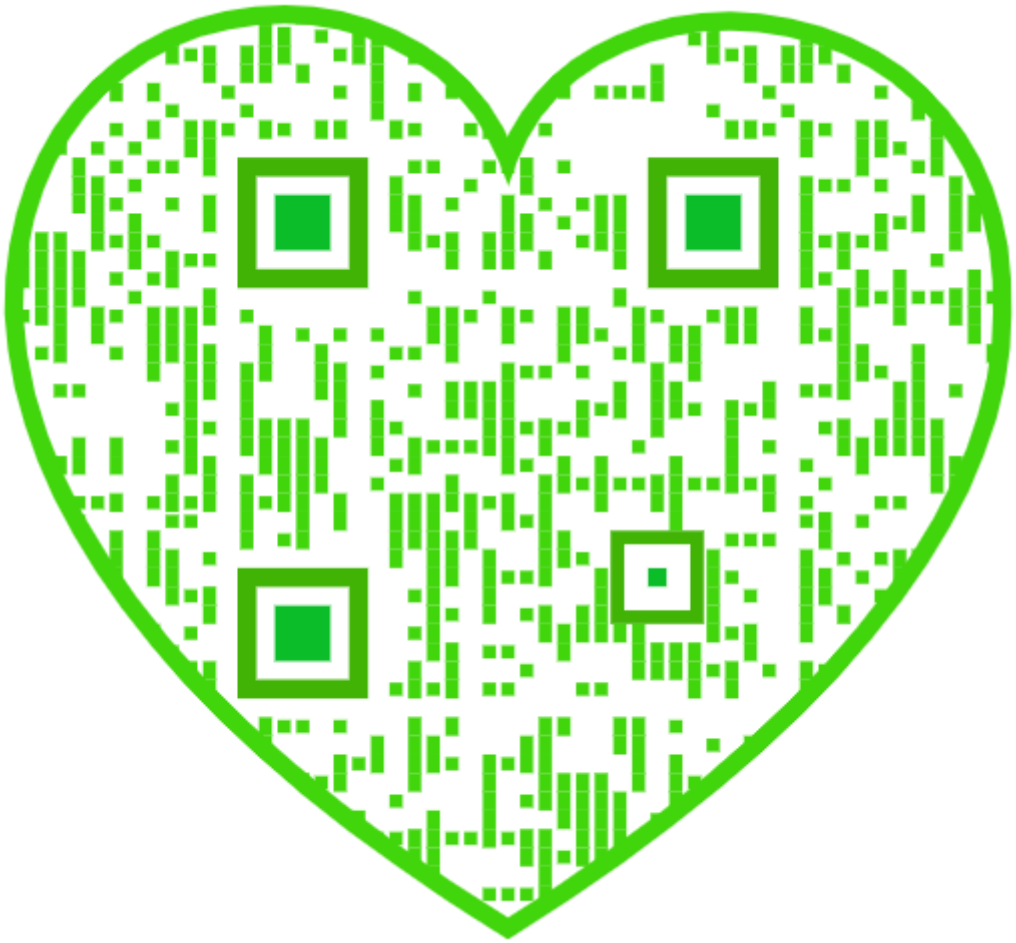

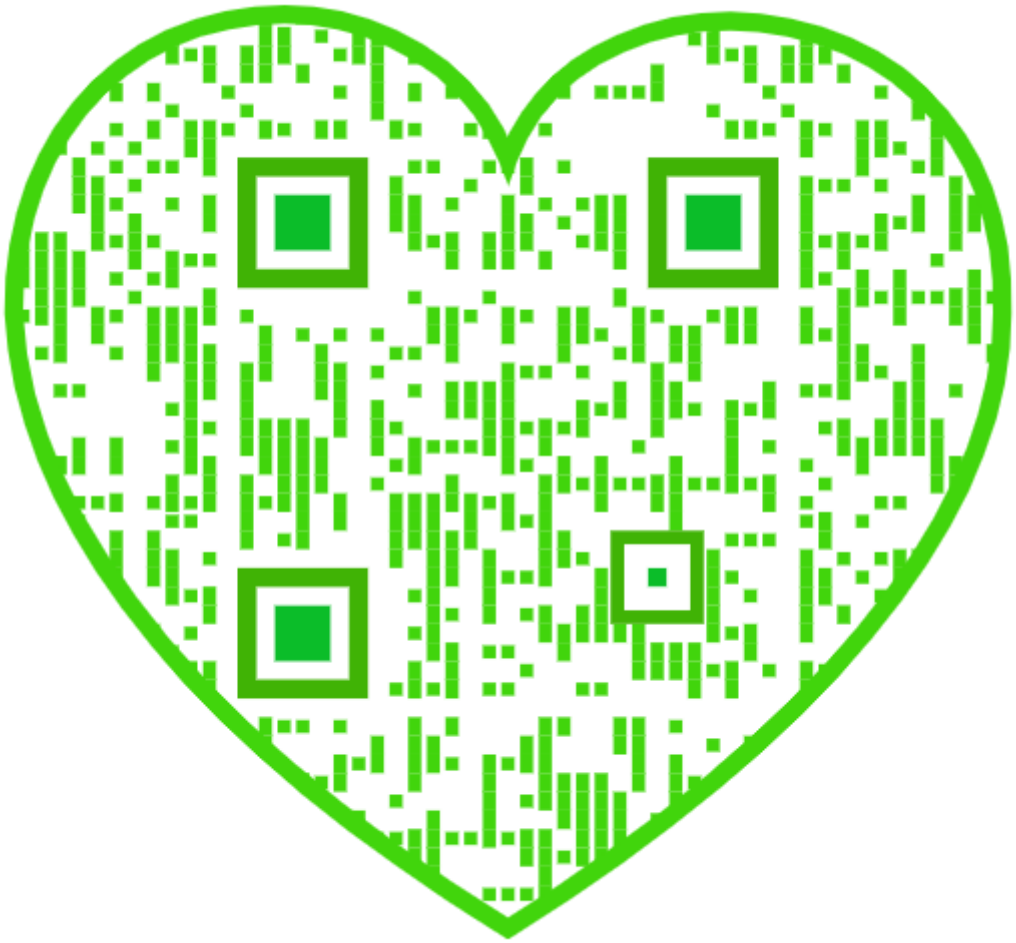

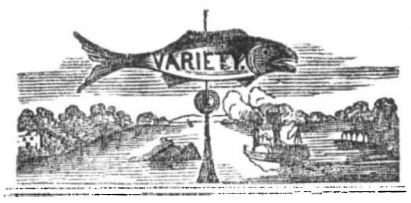

Recent Fires.

At Nashville, Tenn., fifteen houses on College street have been recently consumed.

At Exeter, N. H., the Cotton Warp Factory belonging to John Perkins, and a store opposite, were recently destroyed by fire. The Factory was insured in Boston, at the Manufacturing office for $10,000. Store and goods partly insured.

At Dedham, Mass., the Satinett Factory known as the Maverick Mill. Loss $4000.

At Suffield, Ct., the Satinett Factory of J. McBride & Co., with machinery and contents and a dwelling house. Loss $5000

At Griffin, Georgia, seven stores and warehouses with other buildings.

At Rocky Hill, N. J., a cloth factory, flax mill, saw-mill, and grist-mill, with 12,000 bushels of corn. Loss $25,000.

At Dayton, Ohio, three large pork-houses and seven stores filled with provisions, estimated in all at 800 tons. Loss estimated at $60,-000.

At St. Louis, a large warehouse containing 40 tons of hemp, and other valuable merchandise; also several other buildings, stores, &c.

At Carrol's Island, (below St. Louis) the steamer Ambassador with her cargo of hemp and grain.

At Baltimore, five large warehouses, with other property. Loss $150,000.

At St. Louis, Lower Canada, the house of F. X. Quevillion. Mrs. Quevillion and four children perished in the flames.

Near Lancaster, Schuiler County, Missouri, the house of Stephen Ingraham was consumed. The alarm was given by Mrs. Ingraham, and the husband, upon waking, found that two sides of the house, including the door, and every thing contiguous to it, were in flames.—The only alternative to escape was through the roof, (the house was a small cabin) and they agreed that Mr. Ingraham should open a hole and jump out, and that the wife should hand out the children, six in number. But as soon as air was given, the whole house was enveloped in the flames, which rushed out at the opening which he had made. Only one scream was heard, which was when the mother roused the children from their sleep. Mr. I. instantly burst open the door, but was unable to render any assistance to the unfortunate inmates.

At Paterson, on Saturday night last, the extensive dyeing and print works of Jackson & M'Gennis: also at another hour the large machine shop of Bradley & Brothers, including a woollen manufactory. Amount of loss by both fires $75,000. On the same night, at Nesquenoning, Pa., eight dwelling houses.

Heirs to Great Fortunes.

Two large estates in England have fallen to American heirs; they are estimated to amount to five or six millions of pounds sterling each. The Townly estate is claimed by the Lawrence family in right of an ancestor who originally settled at Flushing, Long Island. The other is the estate of William Jennings, who died at an advanced age, a bachelor and intestate, leaving an estate which amounted in 1844 to over $30,000,000. Two individuals interested are Miss Burnett, now the wife of Mr. Lawrence, who becomes an heir of the Townly estate by her marriage connexion, and her cousin, William J. Burnett, one of the heirs of the Jennings estate by regular descent.

Electric Velocity.

It has been stated, and generally understood, that electricity in high tension travels at the rate of *two hundred and eighty thousand* miles in one second of time: that this is the probable velocity of communications by the Magnetic telegraph. But from recent observations it appears most probable that no space of time whatever is required in the passage of the telegraph current from one station to another, whatever the distance. The induction of the fluid at one end of the wire produces eduction at the other at the same instant

"The Power of Prayer."

We have before us a very pretty pamphlet of the shilling size, and bearing this title, by C Morely, and published by M. W. Dood, Brick Church Chapel, New York. The work is made up of short, interesting articles of serious instruction, and will certainly be read by most of those who once get their eyes fixed upon it. As an illustration of the sentiments of the author, we subjoin the following extract from the preface of the work.

"It has been said that prayer moves the hand that moves the world; when accompanied by true faith, it will hurl mountains from their rocky base into the ocean, or arrest the earth in its constant revolutions, and cause it to remain motionless. But certain qualifications are indispensible in the individual to thus prevail with the Lord. * * * The Saviour has told us that if any man loves the world, the love of the Father is not in him, but at least nine tenths of the professors of religion, of all denominations, manifest as much love of, and eagerness to hoard up riches, as the men of the world"

The Colonel Stanton.

An experimental trip was recently made with the new government steamship bearing this name, lately built at Philadelphia. The result was highly satisfactory, the vessel running 16 miles in an hour and three quarters.—The engine is on a new plan, patented by Captain R. F. Loper; the cylinder is of 26 inch bore, with a stroke of 24 inches. The cylinder occupies a perpendicular position, the engine working across the boat with bevel gearing attached to the shafts by pinions, causing the propellers to make two revolutions to each stroke of the piston. The machinery occupies a space of but five feet square, and including the engine room, there is only six feet by eight taken up. The boiler is about 70 horse power, and furnishes an ample supply of steam.—The Colonel Stanton is about 200 tons burden, rigged with three masts.

Forbidding the Banns.

On the third publication of the banns of marriage at a country church in England, a buxom young woman all in her Sunday trim, arose and said—"Please your honor, reverend sir, I forbid the banns." "Why?" asked the clergyman. "Because I want him myself," was the reply, "and I hold in my hand his written promise of marriage to me."

Settling Up.

As our army in Mexico pays for what it gets, and redresses all wrongs, there are frequent calls for justice. At Jalapa a bill was presented to the Quartermaster for the use of fifty mules used in drawing a 12 pounder belonging to the Mexicans up the Sierra Gorda, which said piece opened upon our troops and did considerable execution.

A Slave Case.

The Governor of Pennsylvania, on the expressed opinion of the Attorney General of that state, has decided against the requisition of the Governor of Maryland, for the restoration of two slaves which had escaped from Maryland to Pennsylvania.

The Albany Telegraph.

The Albany Knickerbocker says that the line between New York and Buffalo, is in the hands of a set of sharpers—the worst set of men in this State—men who have been notorious as shavers and sharpers for years. If this is the fact, the Knic' should define the abuses alluded to.

Not so bad as reported.

It appears by the official reports that there were only 43 Americans killed at the battle of Cerro Gordo, and 365 wounded. The first reports represented two or three hundred killed and twice as many wounded.

That Corner Stone.

A morning paper says the corner stone of the New York Dry Dock was laid on Thursday, by Commodore Smith, chief of the Bureau of Yards and Docks. What next? Perhaps we shall hear of the laying of the *corner stone* of a canal;—a turnpike road or even of a new line of ferry boats, for the sake of the ceremony.

The stockholders of the Utica and Schenectady Railroad Company have just resolved to increase the capital stock $780,000 equal to 39 per cent. on the present capital

Opposition to Improvements.

A correspondent of the London Mining Journal, writing on the subject of the recent improvements in coppersmithing, says:—"I am not altogether so clear, as some of your correspondents may imagine, that we are not warranted to exercise, were it in our power, not only a prejudice, but a determined resistance, to the introduction of anything that will shorten our process. This, Sir, may seem startling; but, probably, you will put me right. We are made to understand, that our masters are bound not to make above a certain amount of copper in the year. Now, any process that will enable them to make that quantity in nine months, or, by letting out one-fourth of their furnaces, will be a great profit to them, but would throw one-fourth of us poor workmen idle; are we, then, to be blamed for possessing prejudices in favor of a system which enables us to provide for our homes, our wives, and our little ones?"

It appears to us most reasonable, that the proprietors in such cases, should compromise with the operatives by allowing them to share in the advantages of the improvements.

City Improvements.

The Supreme Court has confirmed the proceedings of the Common Council for improving this city by widening and straightening William street, extending it direct from Frankfort to Chatham street, which it will intersect at the junction of Chambers and Duane; thus opening another great thoroughfare between the eastern section of the city, and the mercantile centre, and forming on Chatham street a grand junction of streets in six different directions.

A Great Circulation.

The "Alexander's Messenger," claims to have a circulation of ninety thousand copies, (enough to take all the life out of any paper.) Well, if there is any advantage in claims of that kind, we can claim far beyond all precedent,—a circulation of *seven hundred and fifty nine thousand daily.* But thus, as we make but little account of advertising, we have no notion for telling such great stories.

Going over to the Enemy.

The London Herald relates an anecdote of a poor Irish woman who kept a small fruit store in the vicinity of Covent Garden, and who seems to have had her own understanding of the motto, "*Of two evils, choose the least.*" Being asked by a gentleman who purchased some fruit of her "how trade was," she replied, "Och, yer honor, I'm sure it's bad enough; it's myself that's thinking of givin' it up, and goin' over to the famine."

Curious Effect of Contrast.

There are certain shades of blue which, when placed in contact with bright red or scarlet, have a singular effect on the eye of the spectator. The contact edges appear to be in constant motion so that it is difficult to designate the line of division between the two colors.

Burning of Factories.

The New Bedford Mercury says, that within the last four months, 129 factories and mills of various kinds, have been destroyed by fire in the United States.

Small Business.

The editor of the Newburyport Advertiser has been shown a cherry stone of ordinary size, containing *thirty dozen* of well formed spoons. They were manufactured by Mr. J. F. Hodgkins of that city.

A man took off his coat to show a terrible wound he had received some years past.—"Oh!" said he, recollecting himself, on not being able to find it, "I remember now, 'twas my brother Bill's arm."

The Island on which the city of New York now stands, was purchased two hundred and twenty years ago for twenty four dollars.

The expense incurred by the New York police department during the last year, for carting drunkards, was $1336 36.

A project is on foot for making a marine railway across the isthmus, between Nova Scotia and New Brunswick The distance is about 15 miles.

The whole region of country bordering on the Gulf of Mexico seems to abound in coal

LATE FROM MEXICO.

By the arrival at New Orleans of the steamer Fashion, on the 17th, we have intelligence from Jalapa up to the 11th inst. Gen. Worth was expected to enter Puebla on the 17th inst. No resistance was anticipated at that place.—There was some expectation that the army would march upon the capital, but with dimished numbers. The losses sustained in the army by the return of volunteers, and the necessary detachments to guard the cities of Jalapa, Perote and Puebla would leave General Scott a force amounting to scarce six thousand to advance upon the city of Mexico.

The guerillas do not give our troops as much trouble as was anticipated. They are probably doing their office of robbery and massacre upon the Mexicans themselves.

It is reported that matters at the city of Mexico are daily getting worse and worse—all is anarchay and confusion. It cannot well be otherwise. Confidence is all gone, money is all gone, hope is has vanished, and in their place poverty and despair reigns supreme.

A train left Vera Cruz on the 8th consisting of about four hundred wagons, loaded with supplies of all kinds, including over half a million of dollars, and a large number of pack mules, nearly or quite one thousand The escort will consist of about one thousand soldiers about one half of which are dragoons, sent down by Gen. Scott. It is expected that Santa Anna, who is loitering a few miles distant, will make an attempt to capture this train; but it is believed that Gen. Scott will not be caught napping under the circumstances.

Another American Newspaper in Mexico.

A new paper in English appeared at Jalapa on the 25th ult., and went off like steam. It is called the "American Star." It went with a rush, brimming full of news.

It is stated in an agricultural paper, that rats have such an aversion to unslacked lime that they will readily forsake their accustomed haunts, when that article is sprinkled about them.

The Swedes with only 3,000,000 of inhabitants, have 160,000 distilleries, which furnish 40,000,000 gallons of liquor, most of which they export to other countries.

There is a peg-making machine in operation in Cincinnatti, which is operated by steam, and turns out eighteen bushels of shoe-pegs per day.

Among the Americans at Constantinople, are mentioned Dr. Davis, of S. C., who was sent out by the President at the request of the Pasha to instruct the people in raising cotton

A line of telegraph has been established from Philadelphia to Reading and Pottsville, Pa. The charge is fifteen cents for every ten words.

It is stated that 150,000 bricks per day on an average, are required at the new city of Lawrence, Mass. This looks very much like going ahead.

The snow was two feet deep in the woods a Acworth, N. H., since the commencement of the present month, and probably is not all gone yet.

The strength of the English war force is 30,000 cavalry, 180,000 infantry, 14,000 artillery, 30,000 mariners, and 100,000 militia

A man in Colchester, (Conn.) being lately asked his age, replied that he should be sixty four years old on the 27th day of next Fall.

"Prisoner, are you guilty or not guilty

"Faith, and do you think I shall do the work of the jury for 'em when they are paid for the same? Let 'em find it out."

The product of maple sugar in 1846, in the United States, is estimated to have reached 22,000,000 pounds.

A governess advertising for a situation, says "she is a perfect mistress of her *own tongue!*" This is a high qualification.

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SPEAK NO ILL.

Speak no ill of erring kindred
Breathe no slander on the name
Of thy brother, unbefriended,
Tarnish not his humble fame.
Let thy lips for e'er be sealed
'Gainst the weakness of another,
Till thine own frail heart is healed,
Utter nought against thy brother.

Lips may check, aye, blight forever,
Ardent hopes and joyous hearts;
Poison-tip'd, the tongue may sever
Idol-friends by cruel arts;—
Or, harmless, it may firmly fasten
Kindred souls with golden coil,
And may, cheerful, aid and hasten
Youth to fortune from his toil.

Hard the heart that seeks its glory
On the crush'd heart's funeral pile;
Weak the tongue that lends its story
Only to its kind revile.
Such a spirit sinks our nature—
Tramples on the law of love—
Spurns the blessings of our Maker,
Sent in kindness from above!

Triumph of American Mechanics.

ST. PETERSBURG, March 20, 1847.

Visit of the Emperor Nicholas to the Workshops of Messrs. Winan, Eastwick and Harrison.

On the 10th of this month, his majesty the Emperor Nicholas I, visited the establishment of the American Contractors, Messrs. Harrison, Winans & Eastwick, at Alexandroffsky, six miles from St. Petersburg, known as the "Alexandroffsky Head Mechanical Works of the St. Petersburg and Moscow Railway," and where is being constructed the machinery for the railway above mentioned.

His majesty had fixed 12 o'clock for leaving the railway station at St. Petersburg, and punctual to the hour arrived at the appointed place, and after spending a few moments in examining the locomotive at the head of the train, started for the workshops at Alexandroffsky, where the train arrived in about eight minutes. His majesty was accompanied by his imperial highness, the Grand Duke Alexander Nicholaivitch, the heir to the throne; his imperial highness, the Grand Duke Constantine Nicholaivitch, the second son of the Emperor; his highness the Duke of Leuchtenberg, son-in-law of the Emperor; field marshall Prince Paskevitch d'Erwan, viceroy of Poland; his excellency Prince Menschikoff, minister of marine, and head admiral of the Russian Navy, his excellency Count Chernicheff, minister of war; his excellency Count Orloff, minister of police; his excellency Count Keinmichel, minister of way, communications and public buildings; his excellency Count Disalleff, minister of the imperial domains; his excellency Gen. Rockasoffsky; Admiral Lufke; the counsellor of state; Gen. Fischer, director of the department of railways; Col. Kraft, director of the southern division of the St. Petersburg and Moscow Railway; Col. Melnikoff, director of the northern division of the St. Petersburg and Moscow railway, and Major G. W. Whistler, engineer of the St. Petersburg and Moscow railway.

His majesty was received at the door of the works by the contractors, and after the usual presentations, proceeded to examine the works, entering at the south door of the great machine shop. The distinguished visiters first went to the upper floor, where all the small work for the locomotives are prepared for the erecting shop. His majesty examined everything very closely in this part of the works, making many inquiries of the contractors, who explained all the various operations that were going on.—His majesty expressed himself much pleased with the beauty and finish of the parts of the locomotives. He much admired the very beautiful and efficient tools which the contractors have adapted to the various branches of the works, and frequently called the attention of his ministers to them. His majesty, after making the entire circuit of this room, next visited the lower floor, where the cylinders, driving wheels, frames, and all other heavy parts of the locomotive are prepared; here the same minute inspection was also made as above stairs—after which the party proceeded to the erecting shop, where the engines are finally put together Here was to be seen the locomotive in every stage, from the boiler and parts just brought in, to the full, finished machine, cleanly painted and beautifully polished His majesty expressed himself much pleased with the order and neatness of this department, and after witnessing the testing of the boiler of the locomotive by hydraulic pressure, proceeded to the boiler shop; here his majesty, among other things, examined the machine for forming copper tubes, and had the process explained to him; also, the operations of the self acting punching and shearing machines for preparing boiler plates, all of which were in active operation. From the shop, the distinguished visitors went to the iron foundry, and here his majesty saw the process of casting a large driving wheel, which seemed to interest him very much.

The shops where the wheels, axles and trucks are made for the tenders and freight cars were next visited, and all parts worthy of attention examined; from thence to the steam forge hammer shop, where the steam forge hammer, from its novel principle, elicited much attention. His majesty then went to the magazines for finished work; here were shown more than one hundred locomotives, quite complete, with their finished parts cleanly polished and the whole of the machines painted of an uniform color. His majesty expressed himself much pleased with the appearance of the work, and was surprised that so much had been completed in so short a time; eighty of the locomotives have been built entirely during the year 1846, and the establishment was turning out six locomotives and tenders every month. His majesty re-entered the railway train at the magazine, and went by the railway about one mile to the new works erected by the contractors for making the freight and passenger cars. Here his majesty alighted and proceeded to the shop where the wood is prepared entirely by machinery for the freight cars. Here everything was examined with the same attention as at the locomotive department, and the beauty and efficiency of the machinery commented upon in strong terms by his majesty, all the various operations being explained by the contractors. In this shop there are prepared every day, five sets of wood work for the usual size eight wheel box cars, such as are on the American railroads.

From the preparing shop, his majesty and suite went to the erecting shop for freight cars, where the parts are brought together after coming from the machines. In this department twenty-five men put together five box cars complete every day. By this it will be seen how little is left to be done by hand after the parts come from the machines From this shop his majesty walked to the shop for making passenger cars, where was seen this work in all its stages, from the commencement to the entirely finished carriage. This branch of the work is just fairly in operation, and now ready to turn out four of the usual sized eight wheel passenger cars every month. After examining all that was worthy of attention, the Emperor proceeded to the railway carriage, having then seen the whole of the various operations going on at the Alexandroffsky Head Mechanical Works. Previous to getting into the railway carriage, his majesty thanked the contractors for the pleasure he had received in viewing their works, and after shaking them by the hand, the train was put in motion for St. Petersburg, where it arrived about half past three o'clock. The engine which brought his majesty to the works and back, was, by request, run by one of the contractors. On the following day, as a testimony of his majesty's satisfaction, he promoted Colonels Kraft and Melnikoff to the rank of Generals, and ordered the cross of St. Anne to be conferred upon Major G. W. Whistler, the American Engineer; also that valuable diamond rings should be presented to the contractors, Messrs. Harrison, Winans & Eastwick

The establishment of Messrs. Harrison, Winans & Eastwick employs at present, 1,920 workmen, including 1,613 Russians, 121 Germans, 160 Swedes, 17 English, and 5 Americans, which number embraces the whole number of foremen and workmen.

The contracts of Messrs. Harrison, Winans and Eastwick embrace 162 twenty-five ton locomotives and tenders; 5,300 iron trucks, for eight wheel cars; 2,500 eight wheel freight cars; 70 passenger cars, and 2 improved cars on 16 wheels, 80 feet long. Out of which are now finished, 108 locomotives with their tenders; 6,200 wagon trucks; 906 freight cars, and 2 passenger cars.

THE WEATHER, &c.

WEDNESDAY, MAY 19th.

	Hours, A. M.									Hours, P. M.									
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Therm.	54	53½	55	61½	65	65	65	67	66½	67½	69½	69	68½	68	67	64½	60	—	57
Wires,	55	54½	57	62	68	68	66	68	67½	68½	70½	70	69½	69	68	67	64	—	57½
THURSDAY, 20th.																			
Therm.	53½	54½	57	62	64	67	67½	69½	71½	73½	74½	73½	72	69	65	61	57	—	55½
Wires,	56½	56	58	63	66	68	69	70½	72½	74	75	74	73	71	66	62	58	—	56
FRIDAY, 21st																			
Therm.	51	52	57	59	62	64½	67	68*	66½	66	65	63	61	58½	56½	55*	52½	52*	51½
Wires,	52	53	58	60	63	65½	68	68*	67	67	65½	63½	61½	59	56½	55*	53	52*	52½
[*Equilibrium.*																			
SATURDAY, 22d.																			
Therm.	52	53	53*	54	55	55	56	57½	59	60	62	63	63	61	60	59½	58	58	58
Wires,	53	53	53*	54½	56	56	57	58	60	61	63	64	64	62	61	60	59	59	59
[*Equilibrium.*																			
SUNDAY, 23d.																			
Therm.	—	56½	57	59·	62*	65*	67	—	72½	71	72	67	65	63½	63*	62*	60½	60½	60
Wires,	—	57	58	60	62*	65*	68	—	73	72	73	68	66	64	63*	62*	61	61½	61½
MONDAY, 24th.																			
Therm.	59*	59*	59	60	61	62	62½	64*	65½	64	66*	66*	64	61½	63	62	60	59½	57½
Wires,	59*	59*	60	61	62	63	63½	64*	66	64½	66*	66*	65	62½	63	62	61	60	58½
TUESDAY, 25th.																			
Therm	57½	57½	58½*	62	66	70	71	73	76*	78	79½	80	79	74*	72	69½	67*	65	65½
Wires,	58½	58	58½*	63	68	72	73	74	76*	78½	80	81	80	74*	73	70	67*	66	67

[*Close approximation to Equilibriation.* (**Approximations.*)

REMARKS.

Heavy rain at Augusta, Maine, Monday evening, May 17, and at the same time heavy rain in Warren county, Ohio. On Wednesday, 12th and Thursday 13th May, thunder and lightning storms at Charleston, S. C., during which two persons were killed by lightning. A reference to my record of the 13th, will show that my wires truly indicated. Frost in Maine and several places between that and South Carolina, on the 16th of May. Saturday morning, May 22, foggy. Sunday, 23, little rain between 3 and 5 P. M. Monday, 24, shower at 4 A. M.; rain at 12 M.; thunder at 4,30 P. M. to 5 P M.; wires 63½, ther. 62½; at 4,45, same; at 5, same—rain; at 5,15, wires 62, ther. 61½; 5,30, same. The lightning struck an *unprotected* house 1 mile S. of E. of my wires, shattering the unoccupied end very much, besides knocking off the top of the chimney. Thus it is shown to what extent the thunder and lightning affected the wires and the temperature. The clouds of the storm were of great depth, rendering it necessary to light candles at 5 P. M. This is the first thunder storm that has visited this part of Long Island since the evening of the 3d of February. On the 26th of March, a lightning storm came as near as Woodbridge, N. J. at 11 A. M., and in 20 hours threw down 18 inches of snow at Albany. Thunder storms have been frequent and destructive in various localities the present year, but have been absent from this immediate neighborhood. I use in warm weather the tendrils of a grape vine to wind my electric wires—these tendrils wrap so closely around the wire that the lightning cannot pass without scathing the tendril, which is so tender as to show the least contact with electric fire. It is the most perfect indicator I can use. Lightning traverses the surfaces and not the body of solid metal. In tin tubes it passes on the inner surface instead of the outer. The evidence of this is abundant. In tin spouts which have short turns which obstruct the water, the lightning when it comes to that part of the spout where the water fills the spout, passes out at the side through the tin, the fragments of the opening being bent outward—this is the uniform result. It will be seen by the details of my record for the week ending with Tuesday, that the approximations of the wires and thermometer have been frequent. At 4 A. M. the 25th, a cloud was visible above the southwestern mountains. It will be seen by my record that the thunder did not cool the air. I have never yet heard of a case of loss of human life in a building or vessel protected by any kind of a metallic lightning rod reared for the purpose of protection, nor of a vessel being injured by lightning with a conductor at the mast head and the continuity uninterrupted to the water, nor of any instance of the lightning being diverted from the rod by the metal in the heavy guns, chain cables, anchors, &c., on ships of war. The rods used on board of our 74 gun ships is 5-16ths of an inch diameter, and cost 1 cent per foot—the lightning wires necessary for a house will cost less than two dollars—any person can put them up. Terminate the rods in water or moist earth and let them extend a few feet above the comb of the roof and higher than the top of the chimney. The rod may diverge so as to be brought in contact with water or moist earth.

The rods on board ships of war which have never failed, diverge so as to drop the rod in the water outside the ship—the rods which I use diverge 20 feet, and the termination is always surrounded by water, the two cost ten and sixpence New York Currency. Persons struck by lightning should have water thrown freely over them immediately.

E MERIAM.

Brooklyn Heights, May 25, 1847.

Outdoor Labor in Switzerland.

None of the women are exempt from field work, not even in the families of very substantial peasant proprietors, whose houses are furnished as well as any country manse with us. All work as regularly as the poorest male individual. The land, however, being their own, they have a choice of work and the hard work is generally done by the men. The felling and bringing home wood for fuel, the mowing grass generally, but not always, the carrying out manure on their backs, the handling horses and cows, digging, and such heavy labor, is man's work; the binding the vine to the pole with a straw, which is done three times in the course of its growth, the making the hay, pruning the vine, twitching off the superfluous leaves and tendrils, these lighter yet necessary jobs to be done about vineyards or orchards, form the women's work.

The first introduction of the cotton plant into the United States, took place in 1770. Previous to that time, small quantities of the article had been imported, at high prices, chiefly from the East Indies.

Poor Jack.

The child of a drunken sailor asked him for bread. Irritated by his request, the dissolute father spurned him from him with his foot, and the child fell in the sea, from the beach. Nothing could be done from the shore, and the child soon disappeared; but the arm of Providence was extended over him, and by clinging to an oar, or raft, that came near, he floated, till picked up by a vessel then under way The child could only tell them his name was Jack, but the humanity of the crew led them to take care of him. Poor Jack, as he grew up, was promoted to wait on the officers, received instruction easily, was quick and steady, and served in some actions. In the last war, he had obtained so much promotion, that he was appointed to take care of the wounded seamen. He observed one with a Bible under his head, and showed him so much attention, that the man, when he was near dying, requested Jack to accept this Bible, which had been the means of reclaiming him from the ways of sin. By some circumstances, Poor Jack recognized, in the penitent sailor his once cruel father. Such was the affecting story, as related at a meeting of the Brighton Bible Society, by a stranger, who requested permission to address the company. It made a powerful impression on all present, which was not lessened when the speaker added, with a modest bow, "and, ladies and gentlemen, I am poor Jack"

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NEW INVENTIONS.

Potatoe Digging Machine.

We have received from Mr. C. Bradbury of Philadelphia, a drawing and description of a machine invented, arranged and calculated for digging potatoes by the cart load, and thoroughly cleansing and separating them from the earth, &c. by merely hauling the machine through the field by a horse or yoke of oxen. The machine is mounted on a pair of wheels, and consists of a large cylinder of open work with scoops of pointed rods projecting at proper intervals from the periphery. This cylinder is mounted on pivots and so connected to the wheels by geer work, as to revolve in a direction contrary to that of the wheels; and in its revolutions, each scoop takes up a hill of potatoes and by its rotary motion, sifts out the earth therefrom, and deposites the potatoes in a central receptacle, and throws the vines, weeds &c. out at the sides. We cannot give a very specific description without an engraving, but have no doubt that such a machine might be so constructed as to do this work thorough and rapid where the soil is light and free from stones.

Cooperage Machinery.

A machine is in successful operation at the Works of the Inventors' Institute, Perth Amboy, for making kegs and casks. The staves are cut out from any kind of timber, at an incredibly rapid rate, with the proper convexity and concavity, bevelled and grooved and all ready to set up. A variety of beautiful specimens of these staves may be seen at this office.

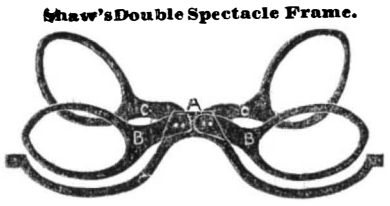
Improved Locomotive Engine.

An English paper speaks highly of a new engine built by Mr. Crampton, and which has been for a few weeks taking the express mail and ordinary trains on the London and Northwestern Railway, and performing its work in such a manner as to effect a saving of from 20 to 50 minutes in a through distance of 50 or 60 miles. It had been tried without a train, for the purpose of testing its rate of speed, when it was found that with four men, it actually attained the great speed of 75 miles per hour on a level, immediately after surmounting a rising gradient; and that at this great rate there was a total absence of all vibration, and a steadiness of movement perfectly surprising. These great advantages are effected in Mr. Crampton's engine by the centre of gravity being brought down to its lowest possible point, the boiler in fact being in this machine within a few inches of the rails.—This strikes us as being a very rational improvement, and one that must be added to the already highly improved engines in this country.

Improvement in the Manufacture of Iron.

This invention, patented by T. Payne, of Birmingham, (Eng.) relates to the manufacture of rolls for rolling iron and other metals. Hitherto it has been the practice to cast the rolls with axes or necks at the ends, which axes or necks are very liable to be broken when in use. Rolls have also been cast upon bars of wrought iron, in order thereby to strengthen the axes or necks; but, in such cases, the act of casting the roller has injured the wrought iron bar; and rolls so made, have not, according to the patentee's belief, been better than those formed with cast iron axes. Rolls with cast iron axes or necks, have also been cast with a small hole through the centre, so as to ensure better castings. The above facts are stated in order that the nature of the invention may be more clearly defined. It consists in casting the rolls hollow, and without axes or necks, and introducing wrought iron axes or shafts into the same; the object being to produce rolls which shall be stronger than those heretofore in use. Care must be taken that the space within the rolls is cast truly, so that the shaft will fit accurately; and spaces must be left for the insertion of wedges or keys at the edge of the rolls, which wedges or keys may be securely retained in the required positions by shrinking wrought iron collars on the shaft. The working journals are turned in the wrought iron shaft after the roll is keyed on; and then the surface of the roll is turned. The patentee prefers that the wrought iron shafts should be cylindrical; but he does not confine himself to that shape.

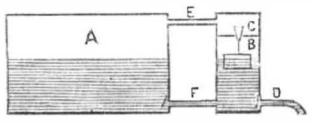
Shaw's Double Spectacle Frame.



EXPLANATION.—To a saddle piece A are attached by rivet joints, two pairs of arms B B and C C with frames or rims for holding the glasses. Each pair of arms meet at the centre, and each terminating in a minute sector with three or more geer-teeth in its arc, and the teeth of each frame interlock with each other so that when one glass is moved up or down, its mate also will be removed, and always retain a corresponding position. Each pair of glasses have different degrees of convexity, and it will readily be perceived that by arrangement of glasses according to the principle described, either or both pairs may be used at pleasure, or that both may instantly be removed if the wearer wishes to view a distant object, the position of the other parts of the apparatus remaining unchanged. It will also be apparent that three or more pairs may be combined in this manner, and that the *focal point*, if three pairs are attached, may be varied to 7 different distances, and consequently will answer the purpose of 7 pairs of common spectacles. A case, composed of thin plates of metal, is to be attached by, and turn on the same pivot which unites the bows to the saddle piece, which may be shut down over and completely cover the several glasses in each series, and when shut down will extend so low that *that* part of the saddle piece which is below the bows will be clutched between its sides, and by that means the several glasses will be completely enclosed. The arms being folded in the usual manner, the one outside may be confined to the saddle piece by means of a spring at one end, when the whole will be secured in a compact form.

We have been furnished with a model of this invention, by the inventor, Mr. Jacob Shaw, jr., of Hinckley, Ohio; and, (with the exception of the metallic casing, which appears rather superfluous) we believe it to be a valuable invention, and one that may come into extensive use.

Self-Replenishing Boiler.



This very ingenious plan for the replenishing of steam boilers with water, keeping the same adjusted to a proper height, and that without any attention from the engineer, has been furnished by Mr. B. Treadwell of Reading, Ct. A represents a boiler of any size, with or without internal tubes. B is a feeding chamber, at any convenient distance or direction from the boiler. In the upper part of this chamber, is a small chamber C, which we shall call the valve chamber of the feeder.—This chamber communicates with the boiler by a pipe E, and the feeding chamber communicates with the boiler by the pipe F, which is occasionally closed at the boiler end thereof by a clapper valve opening into the chamber. The two chambers communicate with each other by a small central aperture which is occasionally closed above by a small conical valve at C, and the rod of this valve descends to a buoyant float which rests on the surface of the water within the chamber B.—The conical valve rod is of such a length that the valve becomes seated or closed when the water in the boiler, and consequently that in the chamber, is at the right guage or height; and as soon as this valve closes, the steam within the feeder will gradually condense, thus forming a vacuum, in consequence of which water is drawn from the reservoir by the pipe D, till the buoyancy of the float overcomes the pressure of steam upon the small conical valve and raises it; the communication between the feeder and the boiler being thus opened above, the water in the feeder seeks its level with that in the boiler by passing through the pipe F. The only difficulty or doubts, if any, with regard to the success of this plan, consists in the uncertainty of the ready condensation of the steam in the feeder when the conical valve is closed. The water in the feeder must have acquired a temperature corresponding to that in the boiler, during the steam communication. But this portion of water not being subjected to any other heat, must gradually condense the steam as above described. We think it might be preferable to place this pipe D and valve, above the surface of the water, to facilitate the condensation of steam when the conical valve is closed.

Improvement in Locomotion.

We find in a London paper received by the last steamer, the following statement respecting an invention recently projected in England and noticed a few weeks since by our foreign correspondent:—

"The invention of Mr. Galloway promises to supply a most serious desideratum in the present construction of locomotive engines, and to exercise a very important influence on the progress of locomotion generally. It has long been acknowledged that one of the greatest difficulties with which the railway steam engine had to contend was that of acquiring a bite upon the rails superior to that supplied by gravitation. The amount of nipping or biting power derived from that principle by the vertical driving-wheel now in use, has been found quite insufficient in foggy weather when the rails are in a greasy state from the moisture upon them, and upon inclines with severe gradients. Under such circumstances the driving-wheel slips, and the engine makes little or no progress. Mr. Galloway's invention is principally intended to overcome this difficulty in working the present locomotive engine, and from the experiments made yesterday, first with a working model, and afterwards on the Great Western Railway, at Maidenhead, there appears to be very little doubt as to its complete success. The invention consists in adding two driving wheels, horizontal or inclined, to the present locomotive; these wheels acting on each side of a middle rail laid between the ordinary rails, and being pressed simultaneously against the opposite sides of the rail by means of adjusting screws acting upon springs with any required degree of force. By such an arrangement it is manifest that a bite adhesion may be obtained far beyond what is due to the weight of the engine, and that thereby the difficulties may be obviated which at present arise from greasy rails and heavy gradients. Mr. Galloway contemplates the application of his invention to engines as at present constructed with vertical driving wheels, and expresses his conviction that such a combination will not be found inconsistent with high velocity. In the meantime, however, he has, we think, prudently confined himself to demonstrating the efficiency of the horizontal driving wheels, unaided by vertical driving wheels, in overcoming steep inclines. The working model with horizontal driving wheels went with great ease up an incline of 1 in 6, and the following statement drawn up by Mr. Gooch, locomotive superintendent of the Great Western Railway, with reference to experiments made on a previous day, apply equally to the results of those made yesterday at Maidenhead:—

"The following is the result of an experiment I made with Mr. Galloway's locomotive engine, in which the driving wheels are placed horizontally, and act against the sides of a centre rail:

Weight of engine	:	20 tons
Weight of load	:	13½ "
Total weight	:	33½ tons

"This weight was taken at a slow speed up an incline of 1 in 19, with a pressure on the boiler of 60 lbs. on the inch, and calculating the power of the engine and actual duty performed, we have as follows:—With steam at 60 lbs. in the boiler, the average effective pressure in the pistons, after deducting back pressure, will be about 50 lbs. on the inch, then the area of the two cylinders 305×50=15,400 lbs., and stroke of piston equal 32 inches, and circumference of driving wheel 116 inches.—Therefore, as 116 : 15,400 : : 32 : 4,248 tractive power on the rim of the wheel. And gravity per ton 1 in 19=118 lbs. Friction do, 7 lbs. 125 33.5 tons=4,187 lbs. Resistance overcome. Therefore, 4,248—4,187=61 lbs. the total loss from the friction of the working parts of the engine, which I think is as small loss as can be hoped for in any class of engines. And from the facility of applying screws to increase the weight on the driving wheels to any required amount, there is no difficulty from slipping. D. GOOCH.

"In explanation of the preceding, it is necessary to state that the former diameter of the driving wheels of the experimental engine (the oldest engine in the company's possession and long since worn out) was eight feet and the horizontal ones are three feet. The tractive power of the engine before alteration was about 1600 lbs. The increase of tractive force therefore, is 4,187 lbs. : 1,600 lbs."

"The leading advantages claimed by Mr. Galloway for his invention are, that the adhesive power being independent of gravity can be adjusted according to the gradient or load, while the train is in motion; that by applying a brake at once to the middle rail, the train in descending any gradient may be retarded independently of the wheels, and also the risk of collisions be avoided; that sharp curves may be traversed almost as easily and quite as safely as straight lines; that punctuality on railways will thereby be better secured, and the necessity for tunneling, heavy cuttings, and embankments to a great degree obviated. Mr. Galloway also states that he can secure on the narrow guage, horizontal or inclined, driving wheels of 6 feet diameter, and on the broad guage 8 feet, so as to act in conjunction with the vertical driving wheels, and that this is practicable at a moderate expense."

Mechanism of the Human Foot.

There is nothing more beautiful than the structure of the human foot, nor perhaps any demonstration which would lead a well educated person to desire more of anatomy than that of the foot. The foot has in its structure, all the fine appliances you see in a building. In the first place, there is an arch in whatever way you regard the foot; looking down upon it, we perceive several bones coming round form the astragalos, and forming an entire circle of surfaces in the contact. If we look at the profile of the foot, an arch is still manifest, of which the posterior part is formed by the heel, and the anterior by the ball of the great toe; and in front we find in that direction a transverse arch; so that instead of standing, as might be imagined, upon a solid bone, we stand upon an arch, composed of a series of bones, which are united by the most curious provisions for the elasticity of the foot; hence, when we jump from a height, directly upon the heel, a severe shock is felt; not so if we alight on the ball or the toe, for there an elasticity is found in the whole foot, and the weight of the body is thrown upon the arch, and the shock avoided.

American Newspapers in Mexico.

There are now eight American newspapers regularly published in Mexico, viz., the Flag, at Matamoras; Sentinel, at Tampico; Eagle, at Vera Cruz; Chronicle, at do.; Star at Jalapa;——, at Monterey (New Leon;) Californian, at Monterey (California;) and a Mormon paper at Yerba Buena, do. Another will soon be wanted in Puebla, another at San Luis Potosi, and ten in the city of Mexico.

Stars Missing.

More than thirteen of the fixed stars, it is said, have disappeared within the last two centuries. One of these presented such a brilliant appearance for about sixteen months, as to be visible to the naked eye at mid-day. La Place supposed it was burning up, as it has never been seen since.

War Against the Bible.

In the reign of Henry the Fifth, a law was passed against the perusal of the Scriptures in England. It was enacted, "That whosoever they were that should read the Scriptures in the mother tongue, they should forfeit land, catel, lif, and godes, from they're heyres forever; and so be condemned for heretykes to God, enemies to the crowne, and most errant traitors to the lande."

Great Britain possesses the sovereignty of forty colonial governments. The yearly cost of these colonies to the mother country is £3,171,646, of which £2,630,804 is for naval and military purposes

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NEW YORK, MAY 29, 1847.

The Mexican War: the Motives and Effects thereof.

We have duly considered the arguments and reasoning of the avowed advocates of *peace principles*, and we are free to admit that by following or carrying out the plainly expressed principles of Christianity, of forgiveness of national injuries, and rendering good for evil, our Government might have avoided a war with Mexico. But such a course would require a peculiar wisdom, which Government, as such, does not possess ; nor has it the constitutional power to do it. But if it had possessed both the power and the disposition, what would have been its course and the results or effects thereof. The first step must have been to relinquish all claims against Mexico, and send them some valuable presents as a token of good will. It must have restrained all citizens from aiding the Texians, and turned a deaf ear to the calls of Texas for aid or protection. and even have signified that if Mexico chose to possess itself of Louisiana, and other territory beyond the Mississippi, there would be no resistance. This supposition, we admit to be extravagant, but we would enquire what would be the effect of such a course on Mexico ? Even admit the supposition, that the Mexican government should have taken an honorable course, and said, ' We will take no advantage, we will pay all your demands and not encroach on your territory : and with regard to Texas, we will manage that in due time ourselves' :—we enquire, what would have been the natural results ? The mass of the people of Mexico are in an ignorant, degraded state, under subjection to a light-hating priesthood, which is the main support of a tyrannical, and selfish Government. To conciliate such a Government (for the Mexican people would have nothing to do about it, but to hug their own chains) would be about as great an act of christian virtue as that of offering aid and pilotage to the captain of a slave ship to prevent his falling in with British cruisers and thus losing his valuable cargo of kidnapped Africans. As for sending instead of warriors, an army of missionaries to Mexico to enlighten the people ; or scientific men to introduce the useful arts and sciences, it were utterly absurd under the former state of society with its benighting institutions. The present war is not against the *people*—the mass of the people of Mexico, but may be in an extensive sense, considered an appeal to the mass, to show them their own situation, and see whether they will approve of the selfish course of the powers which have hitherto ruled them. And what is likely, according to present appearances, to be the final effect of this "unholy" war ? We see already, in every district which has been brought under the American rule—military and arbitrary though it necessarily is—that the liberal arts, trades and principles have sprung up in a manner unprecedented ; and the people, in spite of the influence of the church, are constrained to admit that their trade and privileges have improved. And the way is *now* opened, in a manner that could not have been done by peaceable negotiations with the Government, for the operations of the engines of light, liberty and improvements, which will henceforth entirely change for the better, the general character of that nation. This was not the design of our Government, but it was that of divine Providence. With regard to the grand argument against the war, that its prime object is the extension of slave territory, we cannot bring ourselves to believe any such thing. But if there is danger, the field is now open, and let the friends of liberty improve the opportunity and disseminate industriously the "human rights" principles and sentiments among the Mexicans of the Rio Grande and Vera Cruz; and if the right sentiment prevails in those sections, they will forever form a barrier against the extension of slavery westward beyond its present limits.

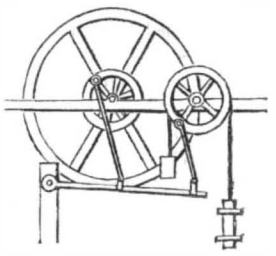
The Inventor's Institute.

A large and respectable meeting of inventors and mechanics was held at Clinton Hall in this city last week, agreeable to appointment, to examine, discuss, investigate and illustrate the subject of the proposed Inventor's Institute, preparatory to the organization and establishment of the same on precisely such principles as the prosperity of the Commonwealth as well as the true interests of inventors in general require, and have required for years and ages past. The propositions presented, and the statements of facts with regard to the preparations and progress already made, met with general approbation ; and the apparent propects of the future results of the noble enterprise, with regard to the pecuniary interests of the members and stockholders, and its influence of mechanical industry, the progress of improvements in the useful arts, and national prosperity, were admitted to be of the most encouraging character. Much credit is due to the principal leader of this movement,—Dr. S. Andrews of Perth Amboy,—for the prompt, judicious and straight forward manner in which he has prepared the way for the introduction and establishment of this institution, and in which he has evidently been led by motives of true patriotism and a noble sympathy for poor inventors, rather than a desire of pecuniary advantage. The outline of a constitution prepared and presented by him cannot fail to meet the approbation of all, unless it be objected that the pecuniary prospects of the Institute are such as to induce capitalists to take up and hold too large portions of the stock. The regular price of the shares is $50 ; but it is proposed (and probably adopted, but the report of the second meeting had not been received when our paper went to press) that every inventor or practical mechanic, shall be allowed to become a stockholder, be entitled to vote in the meetings, and share the semi-annual dividends on his paying $5 in advance, and agreeing to pay the balance of $50 in nine annual instalments of $5 each. $25,000 are already invested in land, workshops, steam engines, &c., for the construction and operation of new mechanical inventions, and a board of examiners appointed to examine all new inventions presented, and report thereon to the Executive Committee, who will negotiate on liberal terms with inventors of such inventions as shall be approved, for an interest therein on conditions of furnishing such aid as may be required, for securing the patents, building, constructing and introducing the improvements, and if need be, supporting the inventor pending the construction and introduction thereof. Communications on the subject from distant inventors, may be, for the present, addressed to Dr. S. Andrews of Perth Amboy, N. J. Editors of public journals will advance the progress of scientific improvements and confer a special favor on the Inventors' Institute, by noticing this young but already important enterprise.

Fitzgerald's Gun.

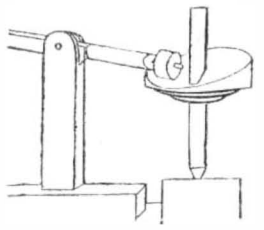
We described the construction of this gun in a former number ; and a question has recently been discussed with regard to the requisite relative strength and size of the section rings (perforated disks) and the longitudinal bolts, that each may be sufficient without a surplus of strength and weight. In the consideration of this question, we take the premises, that the calibre of the gun is 5 inches, accommodating a ball of 17 lbs. weight : and that the length of the bore is 4 feet, and the extent of the projection required 4 miles. If the force applied was to be of steam or compressed air, the force applied might be supposed uniform through the extent of three feet, (allowing one foot for the charge.) but as the greatest force of gunpowder is exerted before the ball has travelled many inches from its seat, we must suppose the greatest force applied to be equal to that required to give the ball its required velocity, by one foot of application of the force. The force required to project the ball four miles is 400,000 lbs. continued through the space of one foot : of course the requisite quantity of iron in the longitudinal bolts, to sustain the force of re-action, must be nearly 7 inches (60,000 lbs. per inch,) or 9 round bolts of one inch diameter. The pressure per square inch of surface is 20,400 lbs. Each inch of length of the gun presents nearly 16 inches of interior surface ; but the force exerted in either lateral direction is only equal to that of 5 inches plane surface, or 102,000 lbs. Only one half of this (51,000) is sustained by any one point in the circumference—consequently, the requisite thickness of the iron rings is 51-60, a little less than seven eighths of one inch.

MECHANICAL MOVEMENTS.



The peculiar arrangement here represented, is said to have been patented by a Mr. Cartwright, as a method of producing a rotary motion by the vertical motion of a piston rod. It will be seen that a cord passes from the head of a piston rod, over a pulley to a counterpoising weight : the pulley is connected by a rod to the end of a horizontal lever ; and that from the centre of this lever, a shackle bar extends upward to the crank of a fly wheel. He probably supposed that by this contrivance, double power would be communicated to the wheel in consequence of the leverage force of the horizontal lever. But this, like numerous other contrivances without science, has failed to answer any valuable purpose.

Circular Inclined Plane.



In this cut is represented an inclined wheel mounted on a vertical shaft : and resting on the disk of the wheel is a pulley, or rather a friction roller attached to the end of a horizontal lever mounted on the head of a post by a fulcrum pivot. Thus it will be seen that when the vertical shaft is made to revolve, a vertical vibratory motion is produced in the lever, a suitable motion for working a pump or blacksmith's bellows. This wheel is one of the innumerable modifications of the cam principle, and the combination constitutes one of the methods of producing a vibratory rectilinear motion by the rotary.

Iron Manufactures in Maine.

We learn from the Portland Adv. that at the Katahdn iron works, some 30 miles above Bangor, they have had one blast furnace in successful operation during the past winter, and are making about 50 tons pig iron per week.—This iron has acquired the very highest reputation among all the manufacturers of note in New England, and commands the highest price. The ore is a pure oxide—yielding upon an average over 50 per cent of pig metal, and much of it is said to yield even 70 per cent —equal to the richest ores of Cumberland, or those of Sweden and Russia. Some difficulty was at first encountered, and the furnace was closed for want of knowledge of the quality of the ore, and a neglect to use the necessary argillaceous substance as a flux. By a series of experiments the quality of the ore has been tested, and the most admirable success has been the result, and a new furnace is soon to be put up.

The President's Visit to New York.

We learn from Washington on good authority, that the President of the United States, soon after his return from Raleigh, North Carolina, where he will be present at the Commencement of the University of that State on the 1st of June, will make a visit to this city, and probably extend his tour eastward.

Baltimore Morning Star.

We are in receipt of two or three numbers of a very neat and intelligent weekly paper, recently commenced under this title at Baltimore by J. C. Ott, Esq. The price of this paper is only one dollar per annum, and we expect it will be extensively patronised.

Commodore Perry.

The fair reputation of this officer, has suffered severely and extensively by the splenetic severity of his reprimand of Lieut. Hunter. The young hero in his " first command," with a small steamer and single gun, fairly took the wind from his master's sails, when he had sailed with 14 vessels on the same mission. Disobedience to orders, as a principle, would be fatal ; but when an offence under such peculiar circumstances was committed for the first time, it would have been better if the Commodore had tempered his language.

More Yankee Enterprise.

Hardly was the siege over at Vera Cruz, before the "American Eagle" appeared at Vera Cruz. In the same paper, a yankee variety store offers a most tempting assortment of goods to the ladies of Vera Cruz. In it also is an advertisement of a daguerreotype establishment. The owner states that he is now ready to take faithful likenesses of the gentlemen and ladies of Vera Cruz, and that, by particular request, he is prepared to call at private houses, to take portraits of the dead and wounded ! This is a very fair specimen of American enterprise.

The Battle of Buena Vista.

We have not forgotten that we, three weeks since, intimated that we should publish a full account of the severe and extraordinary battle of Gen. Taylor and his gallant band, defeating the concentrated forces of Mexico under their self-renowned hero, Santa Anna ; but this event being so soon succeeded (not eclipsed) by the exciting accounts of the successes of General Scott's branch of the army, we were induced to defer, indefinitely, its insertion.

Another Dreadful Shipwreck.

The ship Exmouth, of Newcastle, England, from Londonderry, with 168 passengers and crew, for Quebec, was wrecked on the rocks at Ballanaxie, on the west coast of Islay, with so great a force that she went to pieces in ten minutes after she struck. The captain, crew and passengers were all lost, with the exception of three sailors, who were in the shrouds, and who were thrown upon the rocks, and were subsequently taken off by a vessel passing by.

Yankee Architecture.

Two gentlemen of this town advertise for a plan of a church of the "Corinthian order," to be built of *brick* with a *wooden steeple ;* the wood work, of course, to be painted *white*, in the true Yankee style of arranging colors.—*Worcester Pall.*

The Climate of England.

It is a remarkable circumstance that, altho' in a latitude ten degrees higher than ours, and consequently corresponding to that of some portions of Canada, the climate of England is so much milder than our own, that flowers may be found blooming in the open air, at intervals throughout the winter.

Philadelphia and Norristown Railroad.

We are glad to see, says the Germantown Telegraph, the prosperous state of this road, and the increased amount of busines doing upon it. The agent on the Germantown branch, informed us a day or two ago, that he carried two thousand passengers more in April last than in April 1846.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

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Galvanized Iron.

There appears to be a great revolution in the iron business, now going on in England, and much excitement is thereby occasioned in the trade. The principal improvement in the process consists in passing a strong current of the galvanic electricity through the mass of melting iron in the process of puddling. The first experiment took place at Dowlais on the 12th of November, 1844. The authorities directing that vast establishment, had witnessed and repeatedly been compelled to acknowledge the beneficial effects of the process in the more important branches of the manufacture of iron —but they could not be induced to adopt it,or reap the advantages to be derived from the use of it. However, on such a proposal, which seems to have been selected from its supposed impracticability, being accepted by Mr. Wall, they appear to have been somewhat puzzled; but doubtless relying on the futility of the experiments, they positively declared, that, if he succeeded in rendering the refuse available for any purpose, the battery should be immediately adopted throughout the establishment.

EXPERIMENT.—To two-thirds of slag or refuse was added one-third of No. 3 pig iron, in the puddling furnace. When the charge had reached a semi-fluid state, eight pairs of a Smees' battery, arranged according to the principle of intensity, were applied by means of two wires attached to the pole rods of the battery. To one of the rods was fastened a non-conducting handle, which projected through the rake hole of the furnace,and was occasionally put in motion. The other was passed through the roof, so as to dip into the melting mass. The battery was kept in action about half an hour, or until the metal began to ball, when the electric process ceased. The metal was fonnd to have puddled, and balled in every way similar to their best samples, and in the same space of time, while it appeared more glossy, smoother and freer from defect. The loss on the charge, which was of four hundred weight, was twenty four lbs. The iron was rolled into merchant bars, and also wrought into horse shoes, etc., without showing the least flaw or crack.

"I now thought," says Mr. Wall, "that the time of experiment was over, and that the object of my solicitude was attained, but I was mistaken. The two managers were confined to their houses by sickness. Accordingly,specimens of the metal were forwarded to them.—The messenger on his return, stated that the result was very satisfactory; but that they wished the process to be further proved on the refuse cinder alone, without any admixture of pig metal." Agreeable to this message, a second experiment was made, nothing but the *pure unalloyed* refuse was put into the charge, which was the same in quantity as on the previous trial. In this case the charge was fifteen minutes longer puddling; and required more time to boil before balling, which was slower, though equally good. There was no other difference observable during the operation. On its being drawn, the following were the results: The loss on the 400 weight was found to be 48 lbs "The metal rolled," says Mr. Wall, "like a lump of butter;" it cleared well of its cinder when passing the rollers, and came out perfect bar iron. A fine regular surface glistened beneath the thin scale with which it was covered. It was ball furnaced, re-rolled into merchant bar, and afterwards worked up like the former, into horse shoes, without flaw or crack, though punched cold. On being compared with the ordinary merchant bar, it was pronounced to be slightly inferior in strength, with the advantage of a smoother and more perfect surface. Such were the results of this novel experiment.

Dr. Ure, who has recently examined the subject, says "that when impure iron, as it flows from blast furnaces, is subjected, during its cooling and consolidation, to a powerful stream of voltaic electricity, the chemical affinities by which its various heterogeneous components are firmly associated, are immediately subverted, whereby, in the case of crude iron, the sulphur and phosphorus, which destroy or impair its tenacity and malleability, become readily separable in the act of puddling. I have analyzed the said iron with the utmost minuteness of chemical research, and have ascertained it to be nearly pure metal, containing neither sulphur or phosphorus, and merely an inappreciable trace of arsenic.

The process may be understood by the following brief notice of one of the first experiments at Manning's Foundry, at Blackwall, about three years ago.

To a mass of seven tons, was applied a battery consisting of forty pairs of platinized silver and zinc, eight inches by four, or more accurately, an exposed surface of six inches by 3 and a half, after deducting tare for clamps, etc. On the poles being brought into contact, vivid brushes of electricity were observable even in broad day light. The two iron conductors attached to the pole wires issuing from the battery, and which were intended to convey the electricity to the molten mass, were found to be completely soldered together, and required the utmost exertion to separate them. The operations of such a battery were watched with the most intense interest, and the highest expectations were entertained of the results. And they were fully answered. The metal, when afterwards puddled, hammered, and rolled, was found to be of the most excellent quality; its strength and fibre astonished all present,and the proprietor himself declared that he would not have believed it, had he not been an eye witness.

The following remarks from Dr. Tyson, go to illustrate the apprehensions of interested parties on the occasion. He maintained that in the event of its adoption, an universal and confused equalization would take place; the countries now producing bad ore and worse metal, would be on a par with those which sent the best article into the market. The process of reasoning by which it is attempted to show that an invention, which improves what is defective, deteriorates what is good, is difficult to comprehend; and we can but lament a state of things, in which such arguments are allowed to prevail in opposition to the improvements which genius and industry would introduce into science and art. To make the *best* iron from common cinder, without admixture of rich ore or purer metal, has hitherto baffled the efforts of iron-masters. This, electricity has, in a great measure, achieved by forcing this refuse or peroxide of iron to give up its oxygen without any mixture, and thus bringing it almost to an equality with common merchant iron. But if such be the effects of the application of electricity to an inert and apparently useless mass of refuse, what must be the results of its action on good ore and superior metal. Or are we to suppose that it will be less efficient where there are fewer obstacles, and where its sphere of action is more favorable. Such reasoning is on a par with the excuses which were alledged for discontinuing the use of the battery at another great establishment, after the most convincing proofs of its efficiency and utility."

There appears to have been but little importance attached to this subject by iron-workers in general, for some time after these first experiments, but we are informed that recently, there is an extensive movement on the subject, and certain American Manufacturers are negotiating for the right of the improved process.

Mechanics.

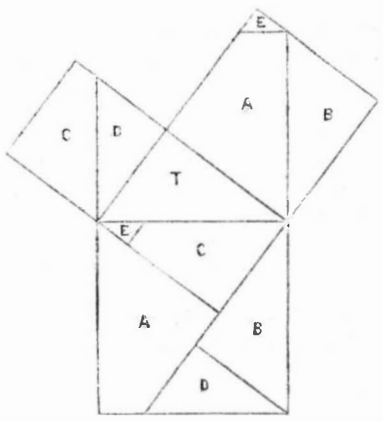
To the mechanics themselves, perhaps, it may be well enough to hold the language that it is their own fault that they sustain no higher position in society; it may stimulate them to the exertion necessary to change it. But when they are viewed as they should be, as a portion of the community upon whom so much depends, in order to render us a nation a little more independent of foreign influences, the mechanic will cease to be looked upon as an unimportant member of society, or reproached for the humble station he occupies.

New Telegraph Line.

Mr. E. Cornell. of Ithaca, has purchased of the patentees, the right to construct a Magnetic Telegraph line between Troy and the Northern boundary of this State, to be connected with Montreal and Quebec lines, which are to be built by Livingston & Wells. This is the first time a Company has been organized independent of control by the patentees. The cost per mile is to be $200, instead of $250 as before.

Sixty thousand seamen of the United States have signed the temperance pledge.

Carpenter's Theorem.



Great importance has been attached to the discovery of the principle here illustrated, and which is said to have been discovered by Pythagoras, about 400 years before the Christian era. The principle is that in every right angled triangle, a square formed upon the longest side or hypothenuse, is exactly equal in surface, to the two squares upon the other sides.—In this diagram T is the right angle triangle. On each side is a square. The largest square is composed of five figures of different dimensions. The two small squares are also composed of five figures,which are severally alike, and equal to the five in the largest square: A to A, B to B, C to C, D to D and E to E. This diagram admits of a rigorous geometrical demonstration, which, however, would be out of place on this occasion.

By papers of different colors, this illustration has been made with great taste and beauty, by ladies, for the double object of amusement and instruction. Figures thus formed have sometimes been considered worthy of gilt frames, and of a place as parlor ornaments, as have numerous other figures for a similar object.

To match the different pieces exactly, and to arrange the colors, so as to produce an agreeable contrast, requires great care, and the exercise of good taste; they hence furnish a good exercise for mental discipline. The principle illustrated is called the "*Carpenter's Theorem*," from its extensive use by carpenters and other mechanics. It is also the foundation of many operations in arithmetic.

The Oregon Rail Road.

Mr. Whitney, the bold projector and persevering advocate of this vast enterprise,recently expressed his views of the subject, in the Assembly Chamber at Albany; and as the whole community of this country and of the world, are deeply interested in the result of the project, we present his remarks to our readers, as reported in the Albany Evening Journal.

"The object ofmy having asked this indulgence, gentlemen, is, that I might have an opportunity of explaining to you a project for a Railroad from Lake Michigan to the Pacific Ocean. I will first give the progress of this project. it has been before the public for nearly three years. I presented a memorial to the last session of 28th Congress, praying for a grant of the public land sixty miles wide, from Lake Michigan to the Ocean, with which, by sale and settlement, to build this road. A committee of that body gave a unanimous report in its favor, recommending it to the people,and recommending the public lands as the only means for such a work. During the summer of 1845, I explored and examined a part of the route. My object, to examine the soil and surface, and ascertain if that part of the route (then not fully known) was feasible for a road, if the lands would be likely to sell and settle, and produce means for the work; if material, timber, stone, &c., could be had on the route, and if the streams could be bridged and where. The soil and surface far exceeded my expectations; timber on the border of the Lake, and a little 90 miles west of the Mississippi; then none on to the Rocky Mountains. The streams can be bridged; the Mississippi at or near Prairie du Chene, and the Missouri at above Council Bluffs, but at no place below that point.

At the commencement of the 29th Congress I again presented a memorial, praying the same object, which memorial was referred to the committee on public lands in the Senate; the subject was thoroughly examined in all its bearings, and the committee unanimously reported in its favor; the bill passed to a second reading and ordered printed with the report. No further action was had at that session. During the last session, the committee, though composed in part of different members, was unanimous in its favor; but it being a short session, the Mexican war and other exciting subjects, prevented action. Strong expressions in its favor have been made throughout the country by the Public Press almost universally, by public meetings in many of our large cities, and resolutions by Legislatures of several States.—Yet, the work is so large, promising such vast results, that the mind in many instances is frightened from a fair investigation of the project and the simplicity of the work itself. I start upon the ground that no work, no enterprise, is too great, too magnificent, when dependant alone upon the labor of man for its accomplishment, furnishing itself the sure and sufficient reward for that labor. I will now, gentlemen, proceed in my plain and simple business manner (as you will have perceived I am not a public speaker) to explain this great project; a work promising such vast results as to almost overwhelm the mind; yet, I hope to make it appear plain and simple.

The first consideration for any work or project is its feasibility and means to carry it out.

Its feasibility I will first explain. We all know the topography of the Mississippi Valley or Basin, that from the great Lakes to the Gulf, and from the Rocky Mountains to the base of the Alleganies, is one inclined plain, without rock, mountain or even hill, and without impediment to the construction of a road, except where the streams cannot be bridged and where the bottom lands are too wide and too soft for such a work.

From the Lake to the pass in the mountains a road may be built on a straight line by compass if you please; from the Lake to the Mississippi the grade for any one mile would not exceed 25 feet—thence to the Pass the average is about 6 feet—thence to the ocean the route is more difficult though perfectly feasible, as was shown from the Senate's committee report, taken from the report of Col. Fremont, who measured the elevations daily from the Missouri to the navigable waters of the Columbia River; and from other travellers, from which Mr. Whitney read extracts, full and clear, showing the route to be feasible, as by the words of the committee:—"A consideration of the facts in the premises, therefore, leaves no doubt of the practicability of the proposed route for a Railroad from the shore of Lake Michigan to the navigable waters of the Columbia River." He said, this point seems settled. The means for the accomplishment of this work. It is not at all probable that Congress will ever appropriate money for such a work; and there are serious objections to the carrying on of such a work by the Government. In the first place it would require years to complete a survey, and then the route must be fixed upon by Congress, and most likely the work would never be commenced and surely, like the Cumberland Road, never completed. I do not ask or require a survey—I do not ask for one dollar of money—and can commence the work so soon as the grant is made. The route from the Lake to the River could be fixed upon and the work commenced without delay; to the mountains the route is well known; and while the work is progressing from the Lake the entire route could be examined, surveyed and fixed upon.

(*To be continued.*)

Farming Utensils of the Mexicans.

(*Concluded from No.* 35.)

The *metate* or stone corn-mill, used for preparing *tortillas*, is the same article that was used by the Indians at the first conquest of Mexico.

Their hoes are clumsy, rough machines,decidedly worse than the meanest hoe in Old Virginia—and that is about as bad a character as I know how to give them.

Their axes are long and clumsy, with blades about three inches wide, and resemble the upper part of a pick-axe or grubbing hoe. It looks remarkable that they should ever be able to peck a tree down with one. The great superiority of the American axe is so evident, that some few venturesome persons have commenced the use of them.

A Mexican cart is the most unique of all

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their inventions. It has not a piece of iron in it or about it. It is constructed entirely of wood and raw-hide. The axletree is a rough hewed log, rounded at the ends. The wheels are made of knotty live oak, two feet and a half through the hub, and trimmed down to 7 inches in the tread. Two slabs of the same width are pinned on to the centre piece to give rotundity to the wheel. A heavy tongue is mortised into the axle, and has a wooden pin inserted through the upper end, by which to fasten it to the yoke. The body is made of wooden poles, inserted into round saplings eight feet long. This is used for hauling wood, &c. When they wish to haul corn, corn-stalks are placed across the wooden poles, and lashed tight to them with strips of raw hide.—When wheat or shelled corn is to be carried, they line the inside of the stalk bed with matting made of the *palmilla*, which resembles the material of which gunny-bags are made.—The ox yoke is a piece of timber five inches wide and three inches thick, slightly indented near each end.. This is tied in front of and across the horns with a piece of tough rawhide. Another piece fastens the yoke tightly to the tongue of the cart. A second yoke of cattle is usually fastened to the cart. A strong rope of raw hide, of sufficient length fastens their yoke to the tongue of the cart. The driver moves along by the side of the cart, sometimes on foot and sometimes riding an ugly, ill-natured looking mustang, with a long ox-goad in his hand. He uses this very freely, and when he wishes to "file left," he pops his goad into the off ox, who screws his tail and runs around his fellow, and changes the direction of the cart. They move more briskly than American oxen. This is no wonder, for they are all taught to "walk Spanish." They haul large loads in these carts and travel as fast as horse teams usually do on a journey. A Mexican frequently carries his wife and children in these carts. He then puts a raw hide on the bottom, to keep the children from falling through, and puts another over the top for a cover, when in crawls the whole family. As soon as "all's set," he hisses at his oxen, as a bear hunter would do when close on bruin, and off starts the whole contrivance, with a full band of road music.

TO CORRESPONDENTS.

"F. F. M. of Mass."—We can procure an engraving of your wheel without any other sketch or description, and shall charge only three dollars for drawing, engraving and description.

"O. P. of Mass."—We require more time to examine and consider your invention, and shall write by mail soon

"O. H. P. B. of Georgia."—Such a machine as you propose, would constitute the long sought desideratum. The thing has been done by means of a spontaneous draught of air thro' a vertical tube, but that is a natural current of one of the elements.

"J. W. F. of N. Y."—Your arrangements of a series of chain buckets for water power, is novel with regard to the large wheel above.—We suspect you may entertain the impression or opinion that there is an advantage of power gained by the *leverage* of the large wheel; but this is not the fact. The old mode of running the belt or endless chains over two drums of equal size is equal in its power and effects, to your plan—in our humble opinion.

"J. S. jr., of Ohio."—Your invention appears to us both novel and useful, and we apprehend no difficulty, in procuring a patent. We have furnished drawings and descriptions of many new inventions recently, on which patents have been already issued; several others are now pending, and several more on hand in progress. The expense of drawings, specification, &c., of your invention will be altogether about ten dollars. We shall forward the business you mention, if required, without delay. You have only to send a model,—or order one,—and we can prepare the requisite papers, send them by mail to you to be signed, &c., and returned to us by mail, when we can forward all to the Patent Office, and also forward the letters patent to you when issued, without your having occasion to leave your residence.

"S. & H. of Vermont."—Your *second* letter mentioned was not received. We like your mode of constructing and mounting the valves of your rotary engine, and there is no doubt of its success if you can sufficiently guard it against leakage. We are glad to learn that you have one in progress of construction.

P. S.—We learn that the dollar has been credited on the office books, but the letter must have been mislaid.

☞In consequence of the frequent mis-direction of letters addressed to this office i. e., in often directing to the Editor, letters that pertain to the business of the Publishers, and vice versa, we are induced, in order to remedy the difficulty, to request our worthy correspondents to address all their communications hereafter to the publishers, whether they be upon business of the office, or soliciting or imparting information upon scientific or mechanical subjects.

Robert Merry's Museum

For June, is as *merry* and interesting as the preceding volumes and numbers. "Jean Pic de la Mirandole," is the first thing that meets our eye; but turning a few pages to the left and right, we find a variety of embellished lively articles on various subjects, from the Towers of Ireland to Maximilian Christopher Miller, the giant, with a forest of tall plumes on his head. Well, we shall not tell our readers much about it, but they can call at Posts' No. 5 Beekman st., and secure the whole volume for $1.

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These enterprising young men have fitted up a large establishment for executing the different branches of plain and ornamental Printing, in the Sun Building, occupying the entire floor over Nos. 124, 126, and 128 Fulton, st., and 89 Nassau st. There may be seen daily in operation a great variety of presses, from the mammoth for large bill printing, down to the diminutive card machine. Their types are new and embrace every variety, and their assortment of Engravings, Ornaments, &c., is unsurpassed. Their mode of doing business has secured them a large share of patronage, which is daily increasing. The New York Organ, a valuable family journal, is also published by them.

FIRST VOLUME.

We would inform those who have been disappointed in procuring the whole of the first volume of the Scientific American, that we have recently come into possession of a few complete sets of the last half, (i e. from Nos. 26 to 52 inclusive) which we will dispose of at the subscription price, viz. $1 per set.

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☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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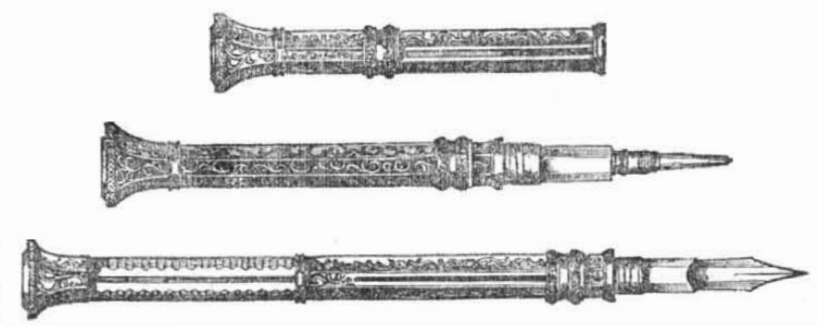

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A. G. BAGLEY, No. 189 Broadway.
New York, Sept. 1, 1846. o24 tf

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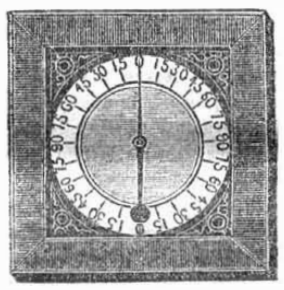
Plumb and Level Indicator.



THE UTILITY of this invention so far exceeds the expectation of the inventor that he has been induced to engage in the manufacture of them to a large extent. It is understood from the engraving, that the proper position of the instrument is vertical, and that the weight of the ball will keep the index in a perpendicular position, so that either the bottom or side of the frame being placed against a horizontal, vertical or oblique surface, the index will show its inclination, (if there be any) in degrees.

Besides its utility, the Indicator possesses a share of elegance, consisting of a neat mahogany frame 9 inches square and glass, encasing a lithographic dial with an appropriate picture in the centre, and the movement is so free that a variation of one fourth of a degree is indicated. They may be sent to any part of the U. S. by Express.

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THOMAS DADE.

State of New York, City of New York, SS.—On the 16th day of February, A. D. 1847, appeared before me Doctor S. B. Smith, who being by me duly sworn, did depose and say that the following certificates and extracts from letters are each and every one of them true as received from the several persons whose names are thereunto attached, and that the same are a portion of the many testimonies of the cures by his Magnetic Machine.

Affirmed before me, this 16th day of Feb. 1847.

DAVID S. JACKSON,
Acting Mayor of the City of New York.

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Superintendant of Portsmouth, N. H.
d12 6m* Steam Mills.

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ZENAS C. ROBBINS,
Mechanical Engineer and Agent for procuring Patents.

WILL prepare the necessary Drawings and Papers for applicants for Patents, and transact all other business in the line of his profession at the Patent Office. He can be consulted on all questions relating to the Patent Laws and decisions in the United States or Europe. Persons at a distance desirous of having examinations made at the Patent Office, prior to making application for a patent, may forward (post paid, enclosing a fee of five dollars) a clear statement of their case, when immediate attention will be given to it, and all the information that could be obtained by a visit of the applicant in person, promptly communicated. All letters on business must be post paid, and contain a suitable fee, where a written opinion is required.

Office on F street opposite Patent Office.

He has the honor of referring, by permission, to Hon. Edmund Burke, Com. of Patents; Hon. H. L Ellsworth, late do; H. Knowles, Machinist, Patent Office; Judge Cranch, Washington, D. C.; Hon. R. Choate, Mass., U. S. Senate; Hon. W. Allen, Ohio, do; Hon. J. B. Bowlin, M. C. Missouri, Hon. Willis Hall, New York; Hon. Robert Smith, M. C. Illinois; Hon. S. Breese, U. S. Senate; Hon. J. H. Relfe, M. C. Missouri; Capt. H. M. Shreve, Missouri. j26

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Case Hardening Iron.

The following are among the several methods of case hardening by means of prussiate of potash. The piece of iron, after being polished, is to be made brightly red hot, and then rubbed or sprinkled over with the above salt in fine powder, upon the part intended to be hardened. The prussiate being decomposed, and apparently dissipated, the iron is to be quenched in cold water. If the process has been well managed the surface of the metal will have become so hard as to resist the file. Others propose to smear over the surface of the iron with loam made into a thin paste with a strong solution of the prussiate, to dry it slowly, then expose the whole to a nearly white heat, and finally plunge the iron into cold water, when the heat has fallen to due redness.

A Cheap Imitation of Silver Bronze.

Put into a crucible an ounce of pure tin, and set it on fire to melt; when it begins to melt, add to it an equal quantity of bismuth, and stir the mixture with an iron rod till the whole is entirely melted and incorporated.—Take the crucible then from the fire, and after the melted composition has become a little cooler, but while it is yet in a fluid state, pour into it gradually, an ounce of mercury, stirring it at the same time, that the mercury may be thoroughly conjoined with the other ingredients. When the whole is thus commixed, pour the mass out of the crucible on a stone, where, as it cools, it will take the form of an amalgam or metallic paste; which will be easily bruised into a flaky powder, and may then be applied to sized figures in the manner of gold or silver bronze, or may be tempered with gum water, and applied to the work with a brush or camel hair pencil; and if properly secured with varnish or laquers, will be even more durable than either silver leaf or silver bronze.

To Prepare an Imitation of Gold Bronze.

Melt two ounces of tin, and mix it with one ounce of mercury; when this is cold, pulverize it, and add one ounce of muriate of ammonia, and one ounce of sulphur, and grind them all together. Put the compound in a flask, and heat it in a clear fire, (carefully avoiding the fumes,) till the mercury sublimes and rises in vapor. When the vapor ceases to rise, take the glass from the fire. A flaky gold colored powder will remain in the flask, which may be applied to ornamental work in the manner of gold bronze, of which it is a tolerable imitation.

To Tin Copper by Boiling.

Boil half a pound of granulated tin and six ounces of super tartrate of potas in three pints of water; when they have boiled half an hour put in any piece of copper ware, and continue boiling fifteen minutes longer. The copper may then be taken out, and will have been handsomely coated with tin.

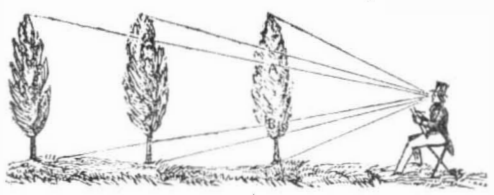
Moorish Cement.

A new cement used in the public works of Algiers is composed of two parts of ashes, three of clay, and one of sand; this composition, called by the Moors, *fabbi*, being mixed with oil resists the inclemencies of the weather better than marble itself.

A Fountain of Fire.

Into a common tumbler or large wine glass, put fifteen grains of finely granulated zinc, and six grains of phosphorus, cut into small pieces. In another vessel mix one drachm of sulphuric acid, with twice that quantity of water. Now, taking these ingredients into a dark room, pour the diluted acid upon the phosphorus and zinc. Effervescence will immediately ensue, occasioned by the evolution of phosphoretted hydrogen gas, which fluid, by its superior levity ascending in the air will spontaneously take fire; brilliant jets of flame will now dart from the whole surface of the liquid; the liquid itself, and the air around it, will be illuminated, and curling columns of luminous smoke will ascend from the fiery mixture producing an appearance applicable to its appellation—a Fountain of Fire.

The Art of Painting.

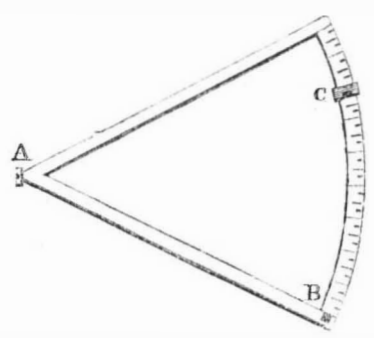


Landscape Painting.

(*Continued from No.* 35.)

We shall not, in this place, give the theoretic and systematic rules of perspective drawing, as usually taught in the schools, and which tends, invariably, to check, if not destroy a natural taste for drawing and painting; but arrange our instructions in such a manner that the learner will be amused with the task and encouraged to proceed. A complete apparatus for this art requires nothing less than all the different pigments and colors, and all the variety of paint brushes and pencils that are used or known; but as no artist has ever hitherto obtained or possessed an apparatus complete, we shall be content to commence with some very simple preparation. With a small quantity of each, of lampblack, Prussian blue, Venetian red, chrome yellow and white lead, ground in oil, and two or three hair pencils, an artist will produce a very fair picture. These, and a great variety of other colors, may be found ready ground and put up in vials and tin-foil tubes, at the artists' finding stores: but the amateur may readily grind and prepare them for himself; and may prepare either cotton cloth stretched and sized as described in our last, or paint on pieces of board, prepared by a ground coat of white, or light stone colored paint. It may be well for him to practice copying from other painted pictures, if such may be readily obtained; otherwise, he may copy from nature, selecting such views or objects as are most simple and easy of imitation. The outlines of the view or picture may be sketched first with a pencil, consisting of a pointed piece of chalk or charcoal, attached to the end of a small round stick, about ten inches long. With regard to *perspective* in drawing, the learner has only to observe the relative proportion and position which one object bears to another. For example: if three trees stand at different distances, the first being 20 feet, the second 40, and the third 60 feet from the artist, then the height of the first will appear double to that of the second, and equal to three of that of the third, as is illustrated in the engraving at the head of this article, by which it is shewn that the height of the third tree appears to the eye only equal to the section A B of the second; and that although the three trees stand on a level, yet the artist, in drawing the representation of them, must place the foot of the third as high on the picture, as the point B on the first; so that a line drawn from the foot of the first to that of the third, will appear on a bold angle with the horizon. The practitioner who draws from nature will compare the apparent size of one object with that of another, that he may give each its proper apparent size on the picture. In most cases, however, the principal grounds, such as sky, clouds, water and land, are painted and allowed to dry, before the trees, buildings, and other particular objects are drawn. In coloring a picture, it is better to endeavor to imitate the natural appearance of natural objects, than to imitate the paintings of even celebrated artists. On this account it is not unfrequently the case, that the production of self taught artists, far surpass in excellence those of regular bred artists who have studied with the most popular Italian masters. The form and size of the principal subjects of a picture may generally be painted of a plain medium color at first, and afterwards brightened with a brighter color, in the direction of the supposed principal light, and shaded on the opposite side. In coloring distant lands, the lights and shades, (or as they are often termed, heightening and shading,) are applied immediately, and incorporated or blended with the medium ground-color before it is dry. But less distant objects, may be heightened and shaded to better advantage after the ground color is dry. Another important rule to be observed in this art, is that of coloring objects more or less bold in proportion to their distance. For example: two brick houses may appear in the view, one of them but a few rods, and the other a mile distant. When properly painted, an ordinary observer would not discover any difference in the coloring of the two: yet the artist well knows that the distant house has less than one fourth of the depth of coloring, that is presented in the other. By a judicious application of this rule, in graduating the colors, as well as the size of objects, the eye of the spectator is deceived, and he is led to believe that a part of the painted surface is absolutely farther distant from the eye than other parts.

SKETCHING IN PERSPECTIVE.



A beginner in the art of drawing landscape views, will sometimes find it difficult to measure the relative proportions of distant objects, by the eye alone, but may readily prepare an instrument similar to that represented in the above cut, (the plan of which was furnished us by Mr. J. Emery, of Bucksport, Me.) This sextant may be ten or twelve inches in length, made of wood, or of stout pasteboard merely, with a scale of inches on the curved part. It has a small upright projection at A, through which is a small orifice; another upright or projecting pin at B, and a third at C. The upright at C is moveable, being fixed on a sliding clasp, which may be moved to the right or left on the arc. This instrument may be used in either a horizontal or vertical position; and when the practitioner would observe the visual height of a distant object, he has only to bring the orifice A to his eye, raise the sextant till the pin B ranges with the bottom of the object, and remove the sliding clasp C till the pin ranges with the top thereof: the inches on the scale, between the projecting pins, will shew the height that the object is to be drawn. By a similar process, the visual breadth of an object or the distance between the two objects, may be readily ascertained.

(*To be continued.*)

Great Clock at Strasburg.

From the bottom to the top it is not less than 100 feet, and above 30 feet wide and fifteen deep. The clock is struck in this way: The dial is some twenty feet from the floor, on each side from which there is a cherub, or little boy, with a mallet; and over the dial is a small bell. The cherub on the left strikes the first quarter, that on the right the second quarter. Some fifty feet over the dial, in a large niche, is a huge figure of Time, a bell in his left, a scythe in his right hand. In front stands a figure of a young man, with a mallet, who strikes the third quarter on the bell in the hand of Time; and then glides, with a slow step round behind Time; out comes an old man, with a mallet, and places himself in front of him. As the hour of twelve comes, the old man raises his mallet and deliberately strikes twelve times on the bell, that echoes through the building and is heard round the region of the church. Then the old man glides slowly behind father Time, and the young man comes on, ready to perform his part as Time comes round again. Soon as the old man has struck twelve and disappeared another set of machinery is put into motion some twenty feet higher still. It is thus: There is a higher cross, with an image of Christ on it. The instant twelve has struck one of the apostles walks out from behind, comes in front, turns, facing the cross, bows, and walks around to his place. As he does so another comes out in front, turns, bows, and passes on; so twelve figures, large as life, walk around, each to his place. As the last disappears an enormous cock, perched on the pinnacle of the clock, slowly flaps its wings, stretches forth its neck, and crows three times, so loud as to be heard outside the church to some distance, and so naturally as to be mistaken for a real cock. Then all is silent as death. It was made in the year 1500, and has performed those mechanical wonders ever since, except about fifty years, when it was out of repair.

Creosote.

This is a vegetable principle discovered by Dr. Reichenbach—it being the essential principle of the pyroligneous acid, well known for its antiseptic properties. It is an oleaginous liquid, clear, colorless and transparent, and powerfully refractive. Its odor is very penetrating and disagreeable, resembling that of smoked meat. Its taste is very caustic and burning. The most important property of creosote is that of retarding animal decomposition. Fresh meat and even fish, soaked in a solution of creosote, is incapable of putrefaction.

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